Building a Connected City
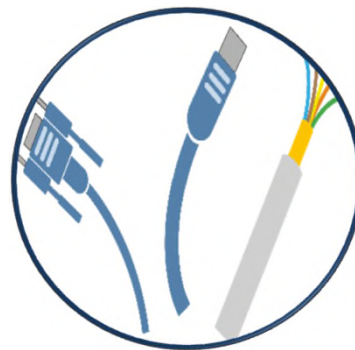

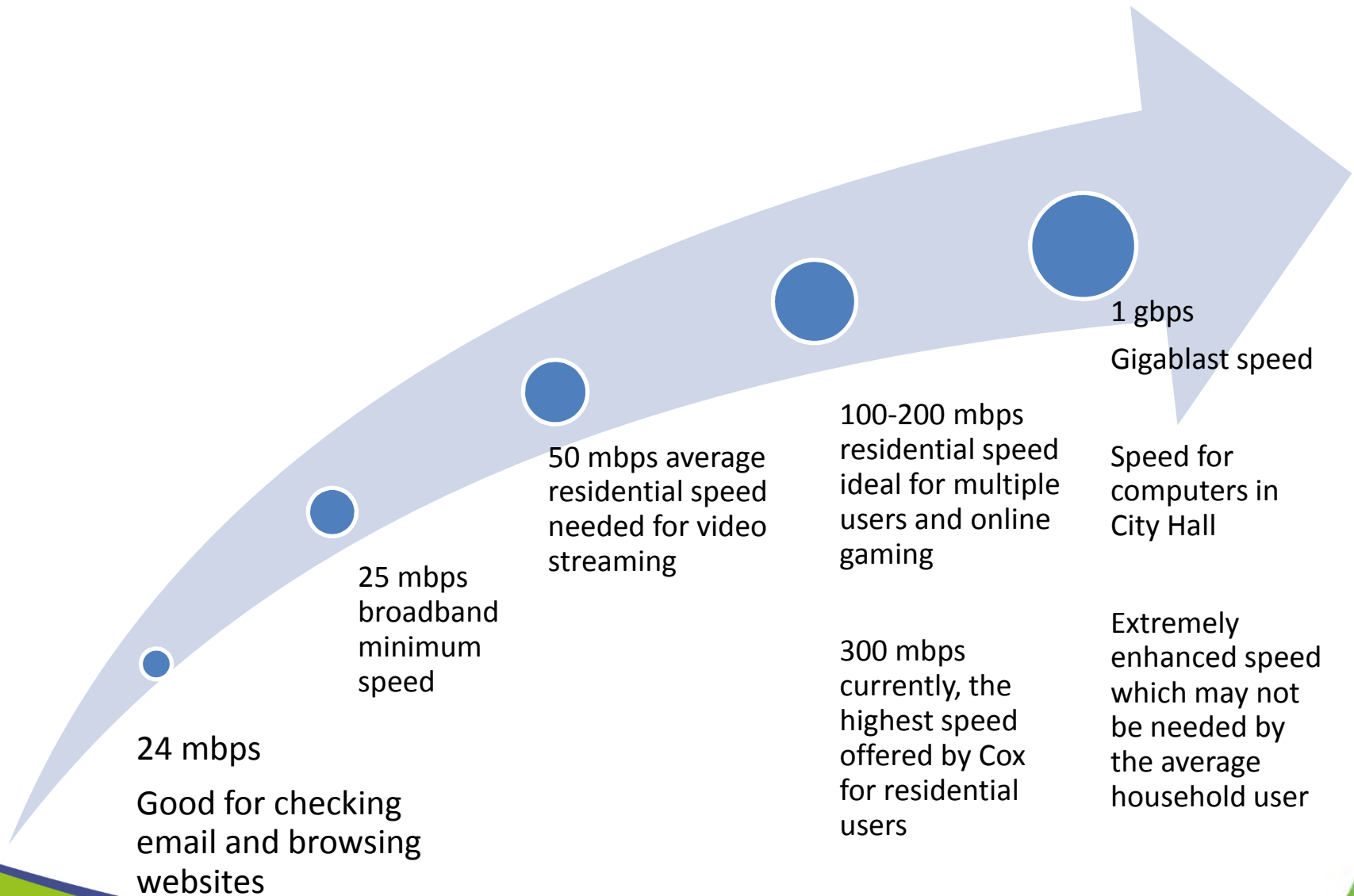*City Council Presentation*
May 24, 2016

Presentation Overview

- **Building a Connected City**

  ✓ Expanding broadband (internet) accessibility and capability

  ✓ Increasing access to public Wi-Fi

  ✓ Supporting Smart City initiatives

- **Leading the Region in Technological Innovation**

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Increasing Accessibility

- Access to high speed internet is needed to support complex business processes

- Increased accessibility can be achieved by:

  ✓ Expanding the existing capacity of municipal broadband

  ✓ Increasing the number of competing providers

  ✓ Increasing access to free public Wi-Fi

Determining the Appropriate Speed

24 mbps

Good for checking email and browsing websites

25 mbps broadband minimum speed

50 mbps average residential speed needed for video streaming

100-200 mbps residential speed ideal for multiple users and online gaming

300 mbps currently, the highest speed offered by Cox for residential users

1 gbps

Gigablast speed

Speed for computers in City Hall

Extremely enhanced speed which may not be needed by the average household user

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What is the City's Role in Providing Broadband Services?

- **What the city can do:**

  - ✓ Renegotiate Cox Cable franchise agreement for municipal services

  - ✓ Expand fiber infrastructure

  - ✓ Leverage right of way

  - ✓ Employ emerging technology

- **What the city cannot do:**

  - ✓ Set internet and cable rates for residents and businesses

  - ✓ Override service provider business models

Residential Rates

(Reflects stand alone rates, does not include taxes, fees, or bundle rates)

Provider	Broadband rate per month	Non-broadband rate per month
Cox	$55 for 50 mbps $65 for 150 mbps $85 for 300 mbps	$9.95 for 10 mbps Low-income families with child in K-12 $40 for 15 mbps
Verizon Speeds over 50 mbps are only available through Fios	$50 for 50 mbps $70 for 150 mbps $170 for 300 mbps $270 for 500 mbps	$20 for 1 mbps $30 for 3 - 15 mbps
Cox Gigablast (coming soon)	$99.95– 1 gbps	Only in new construction areas Watermark Development in Ward's Corner first in the city

Note: Business rates are negotiated on a case by case basis based on specific needs

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Taking the Lead in Connectivity

Residents

- Provide free public Wi-Fi at city libraries

- Expand access to free public Wi-Fi

- Pilot neighborhood projects

Businesses

- Expand pool of business providers by leveraging city assets – fiber and right-of-way access

- Expand access to free public Wi-Fi in targeted downtown and business corridors

City Services

- Renegotiated Cox internet service agreement for higher speed at lower cost

- Expand city-owned fiber network

- Ensure cyber security for expanding broadband access

- Named Google eCity

Public Schools and Higher Education

- Renegotiated Cox internet service agreement for higher speed at lower cost for NPS

- Partner with higher education institutions for connectivity

- Work with NPS to leverage city fiber and lower costs

A work group is being established to further develop synergy with broadband stakeholders

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Expanding City Capability
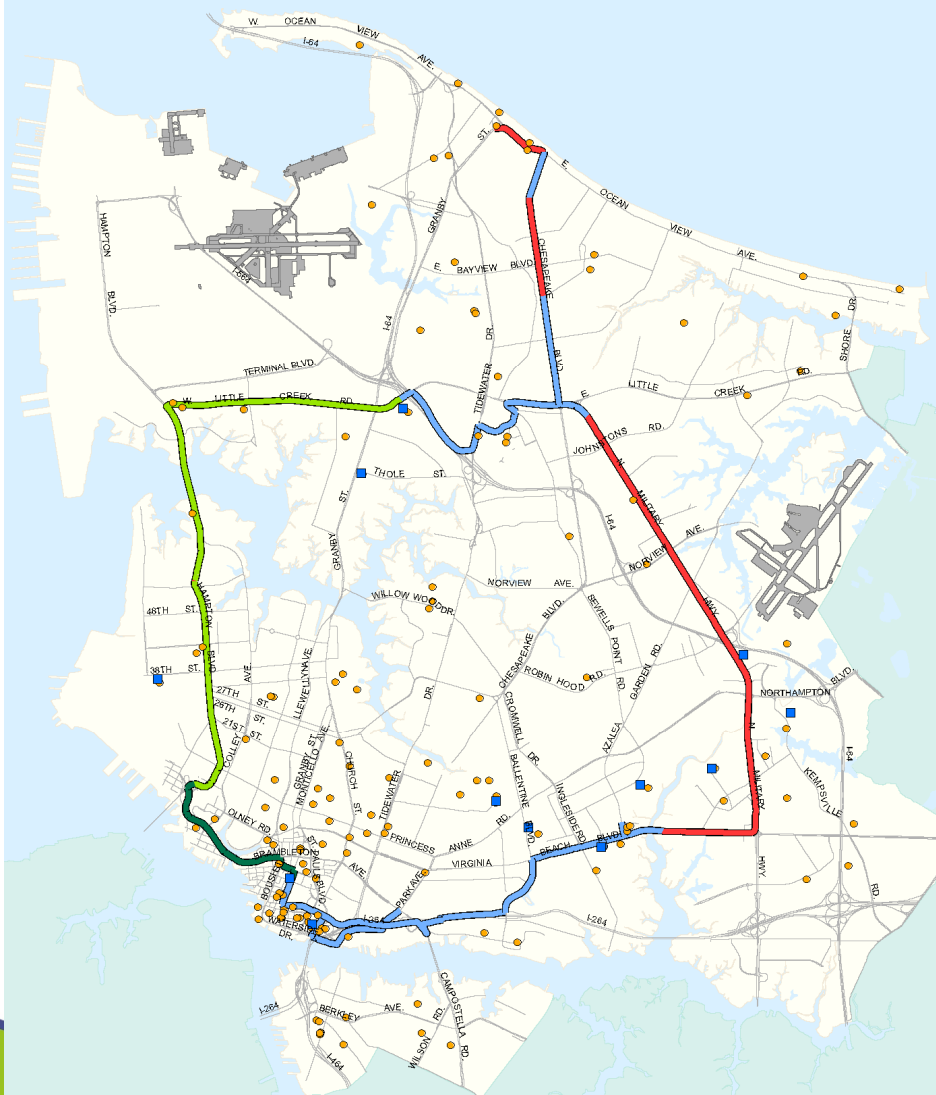
- Current infrastructure installed in 2005
  - Leased and city-owned fiber
  - Strategically placed switches
  - Critical city facilities at broadband speed
- Refreshes and builds out fiber network ring
- Opportunities to connect communities and facilitate partnerships

Increasing Access to Free Public Wi-Fi

Benefits Include:

- Increase traffic to local businesses

- Improve attractiveness to future residents and businesses

- Support Smart City initiatives

- Provide a city branding and advertising platform

Increasing Access – Phased Approach for Free Public Wi-Fi

Phase One – Selected downtown sites, including MacArthur Square and Town Point Park

Public-Private Partnership

Phase Two – Expand Wi-Fi radius around public spaces and target neighborhood pilot programs

Norfolk is a Smart City

Using technology to enhance the quality of life for residents, businesses, and visitors

Data Analytics
High Speed Internet
Mobility
Strategic Planning
Technology
Traffic Management

- Supports data-driven decision-making

- Leverage existing data applications to improve real time responses, examples include:

  ✓ Online permitting and inspections

  ✓ Smart parking meters

  ✓ STORM weather event analysis

  ✓ TITAN storm surge tracking

- Reinforce cyber security strategies

Leading the Region in Technological Innovation

- ✓ Enhanced and scalable city fiber ring

- ✓ Expanded access to public Wi-Fi

  - One of the first cities in the region with free Wi-Fi in public venues

- ✓ Named 2015 Google eCity

- ✓ Hosting a Smart City symposium in conjunction with Microsoft

Moving Forward

Cost

- Build out city-owned infrastructure

- Renegotiate Cox franchise agreement

- Continue to attract new providers

Access

- Develop long-term connectivity strategies via broadband work group

- Explore regional partnerships

- Leverage wireless internet technology

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Questions

Appendix

Appendix - Terms to Know

- **Broadband** – allows internet access to consumers using one of several high-speed transmission technologies. Defined by FCC as download speed of 25Mbps

- **Data** – signals sent across fiber, cable, or telephone lines, which delivers end-users with internet, television, and telephone connection

- **Fiber** – high-speed means of transmitting data from a service provider to an end user, such as city facilities and businesses (underground or aerial)

- **High Speed Internet** – interchangeable with "Broadband"

- **Institutional Network (iNet)** – An advanced fiber-based communications network that connects common stakeholders and includes video, data and voice

- **Wi-Fi** – connects devices to the internet through short-range wireless transmitters

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Appendix - Understanding the Need

Broadband speed measured in megabits per second (Mbps)

Minimum 25 mbps

Wi-Fi connects over the air, providing an easy way for homes to access internet without cables

Megabytes (Mb) = memory capacity and file size
8 bits = 1 byte, if download speed is 8 megabits per second (8 Mb), then that's actually shifting 1 megabyte per second (1 Mb)

Download speed for residential ranges from 8 Mb to over 100+ Mb

Expect 120 Mb – 200 Mb to become norm in the next few years

Upload speed is important for exchanging files with a remote network,

or for a lot of online games

Generally much slower than download speed

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